DEPARTMENT of ENVIRONMENTAL SERVICES Water Division - Watershed Management Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: CAPTAIN POND	Lake Area (ha):	36.54
Town: SALEM	Maximum depth (m):	8.6
County: Rockingham	Mean depth (m):	2.5
River Basin: Merrimack	Volume (m³):	874000
Latitude: 42°48'30" N	Relative depth:	1.3
Longitude: 71°10'22" W	Shore configuration:	1.24
Elevation (ft): 156	Areal water load (m/yr)	: 5.28
Shore length (m): 2600	Flushing rate (yr^{-1}) :	2.10
Watershed area (ha): 388.5	P retention coeff.:	0.65
<pre>% watershed ponded: 0.0</pre>	Lake type:	natural

BIOLOGICAL:	19 February 2003	28 August 2002
DOM. PHYTOPLANKTON (% TOTAL) #1	COELOSPHAERIUM 85%	COELOSPHAERIUM 50%
#2		CERATIUM 12%
#3		
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		4.72
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 50%	CONOCHILUS 55%
#2	NAUPLIUS LARVA 20%	KERATELLA 13%
#3	CALANOID COPEPOD 11%	NAUPLIUS LARVA 11%
ROTIFERS/LITER	197	791
MICROCRUSTACEA/LITER	134	256
ZOOPLANKTON ABUNDANCE (#/L)	343	1094
VASCULAR PLANT ABUNDANCE		Scattered
SECCHI DISK TRANSPARENCY (m)		1.7
BOTTOM DISSOLVED OXYGEN (mg/L)	2.1	0.3
BACTERIA (E. coli, #/100 ml) #1		40
#2		5
#3		

SUMMER THERMAL STRATIFICATION:

stratified

Depth of thermocline (m): 4.7 Hypolimnion volume (m^3) : 40500 Anoxic volume (m^3) : 122000

CHEMICAL:		Lake: Town:	CAPTAIN I	POND	
	19 February 2003		28 August 2002		
DEPTH (m)	2.0	6.0	2.0	5.0	7.0
pH (units)	6.1	6.0	6.9	6.5	6.5
A.N.C. (Alkalinity)	8.3	9.0	16.1	12.7	30.4
NITRATE NITROGEN	0.11	0.16	< 0.05		0.07
TOTAL KJELDAHL NITROGEN	0.30	0.40	1.00	0.80	1.10
TOTAL PHOSPHORUS	0.011	0.012	0.026	0.041	0.051
CONDUCTIVITY (µmhos/cm)	233.0	237.0	246.0	244.0	248.0
APPARENT COLOR (cpu)	55	55	38	38	150
MAGNESIUM			2.75		
CALCIUM			11.7		
SODIUM			27.5		
POTASSIUM			2.59		
CHLORIDE	53	52	54		51
SULFATE	10	10	10		3
TN : TP	37	47	38		23
CALCITE SATURATION INDEX			2.1		

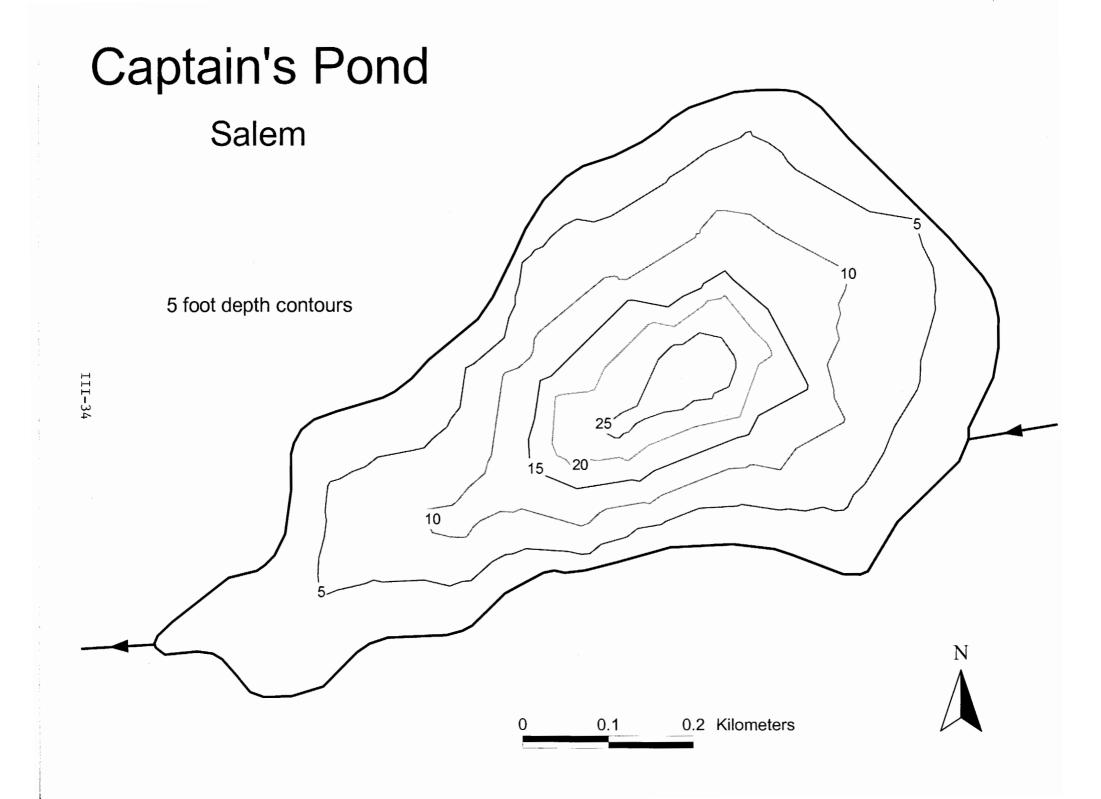
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 2002

D.O.	s.D.	PLANT	CHL	TOTAL	CLASS
4	4	1	1	10	Meso.

COMMENTS:

- Previously surveyed in 1976 and 1987, and a participant in VLAP since 2001. The pond has remained in the mesotrophic category over the 26 year period, although the trophic parameters have varied through the years.
- 2. No public access; need key from lake association to use the private boat launch.
- 3. Elevated levels of Na, Cl and conductivity suggest road salt runoff to the pond. Other cations were also elevated, typical of southeast NH urban ponds.
- 4. Phosphorus was elevated in the bottom waters during the summer.
- 5. Although the chlorophyll was not high, the blue-green alga *Coelosphaerium* was the dominant net phytoplankton in both winter and summer.



FIELD DATA SHEET

LAKE: CAPTAIN POND DATE: 08/28/2002

TOWN: SALEM

WEATHER: Cool & breezy

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	23.7	7.4	86 %
1.0	23.7	7.4	85 %
2.0	23.6	7.4	86 %
3.0	23.5	7.1	82 %
4.0	21.4	0.7	8 %
5.0	16.7	0.2	2 %
6.0	13.4	0.2	2 %
7.0	12.8	0.2	2 %
7.5	12.7	0.3	3 %
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SECCHI DISK (m):

1.7

COMMENTS:

BOTTOM DEPTH (m):

8.0

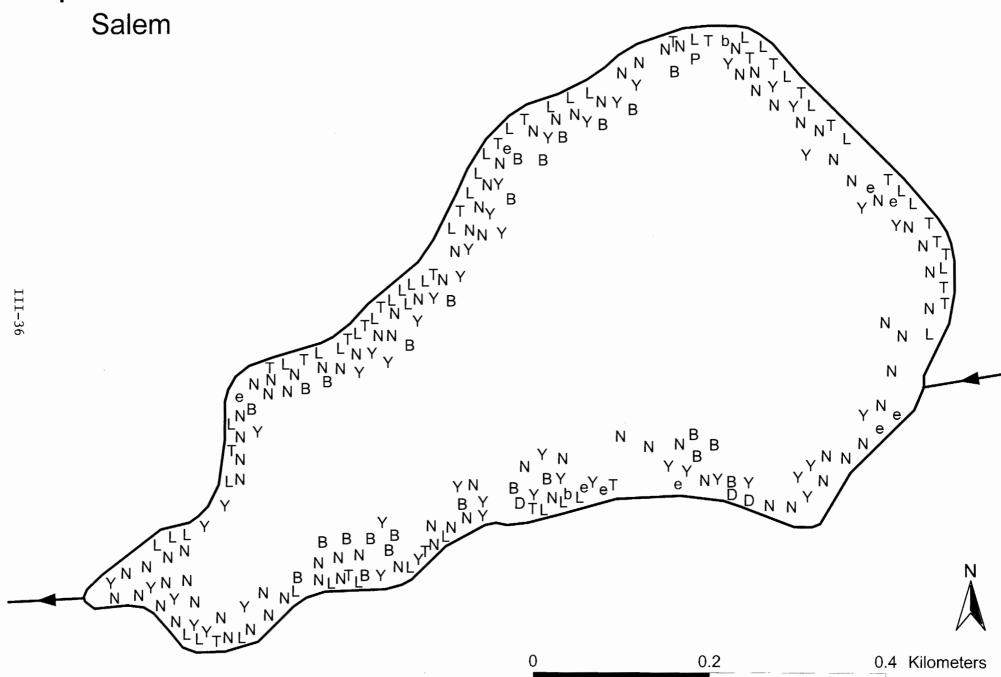
1045

Essentially no D.O. below 4 meters – this includes the entire hypolimnion and most of the metalimnion.

*Dissolved oxygen values are in mg/L

TIME:

Captain's Pond



AQUATIC PLANT SURVEY

LAK	E: CAPTAIN POND	COWN: SALEM	DATE: 08/28/2002
Key	PLANT	PLANT NAME	
кей	GENERIC	COMMON	ABUNDANCE
N	Nymphaea	White water lily	Scattered
е	Eleocharis	Spike rush	Sparse
b	Scirpus	Bulrush	Sparse
L	Lythrum salicaria	Purple loosestrife	Sparse
P	Pontederia cordata	Pickerelweed	Sparse
Y	Nuphar	Yellow water lily	Scattered
т	Typha	Cattail	Sparse
В	Brasenia schreberi	Water shield	Scattered
D	Decodon verticillatus	Swamp loosestrife	Sparse
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OVERALL ABUNDANCE: Scattered

GENERAL OBSERVATIONS:

- 1. The exotic species of milfoil was not observed on this trip. The pond was treated in late May 2002 with the herbicide diquat to control the milfoil growth.
- The exotic species of milfoil first appeared in Captain Pond in 1996 and the pond was treated with diquat for milfoil control in 1998, 1999, 2001 and 2002.